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WITNESS my hand this
Twentieth day of October 2004

J. Billingsley

JULIE BILLINGSLEY
TEAM LEADER EXAMINATION
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AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED:

Pallet

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This invention is best described in the following statement:

PALLET

Field of the Invention

The present invention relates to pallets and in particular to a multi-purpose metal pallet.

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Background of the Invention

Pallets made of wood are typically used throughout the world for easy storing and transporting of goods. These pallets are generally of a square shape having an upper and lower deck made of a series of wooden planks and at least two solid wooden beams therebetween. The pallet is normally nailed together and includes slots within which a
10 forklift's tines can be located for lifting and moving the pallet.

Known pallets suffer from many disadvantages, for example, they are expensive to manufacture and repair; they are limited to standard sizes; have protruding fixings or connections; are limited in the amount they can carry; are easy to damage or break; are heavy; it is difficult to attach additional components when required; absorb moisture,
15 liquids and odours; are a fire risk; can have termite and insect contamination; splinter easily; the nails can loosen; have a short life span and the timber used is generally from hardwood forests. In particular, when a wood pallet is damaged the repair or replacement of the pallet is expensive and time consuming and it is usually easier to discard the pallet. Further, wood pallets retain dirt and other undesirable substances which minimises their
20 use in contamination or hygienic areas such as the food or medical industries.

Object of the Invention

It is an object of the present invention to overcome or ameliorate some of the disadvantages of the prior art, or at least to provide a useful alternative.

Summary of the Invention

There is firstly disclosed herein a metal pallet having:

a top deck;

a bottom deck; and

5 at least two elongate bearers securing said decks together; wherein

each bearer extends between said decks and has a top web and a bottom web connected to a central web by inclined portions.

Preferably, each said bearer includes a pair of abutting members releasably securable to said decks and each other by fastening means.

10 Preferably, said abutting members each include a top web and a bottom web connected to a central web by inclined portions, each said central web adapted to be secured together.

Preferably, said fastening means is a threaded fastener.

Preferably, said fastening means is spot welding.

15 Preferably, said pallet is of a generally rectangular configuration having a front edge, a rear edge and two side edges.

Preferably, said pallet includes a plurality of elongate bearers.

Preferably, said pallet includes recesses for said fastening means.

Preferably, at least one elongate bearer includes a stiffener.

20 Preferably, said top or bottom deck is of a profiled configuration.

Preferably, said profiled configuration are corrugations.

Preferably, at least one edge includes a cover plate.

Preferably, said elongate bearers include end caps.

Preferably, said pallet includes cavities for receipt of tines of a forklift.

Preferably, said pallet includes sheet material attached to at least one deck.

Preferably, said metal is galvanised steel.

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Brief Description of the Drawings

A preferred form of the present invention will now be described, by way of example only, with reference to the accompanying drawings wherein:

Figure 1 is a partial perspective view of a bearer of an embodiment of the present invention;

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Figure 2 is a perspective view of a pallet of an embodiment of the present invention;

Figure 3 is a partial perspective view of a bearer of another embodiment of the present invention;

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Figure 4 is a partial perspective view of a pallet of Figure 2 with attachments;

and

Figure 5 is a partial side view of a pallet of Figure 2 with attachments.

Detailed Description of the Preferred Embodiments

There is disclosed herein a pallet 1 manufactured of metal and in particular galvanised steel or aluminium. The pallet 1 includes a top deck 5, a bottom deck 10 and
20 at least two elongate bearers 15 securing the decks 5, 10 together. Each bearer 15 extends between the decks 5, 10 and has a top web 20 and a bottom web 25 connected to a central web 30 by inclined portions 35. In a preferred form, each bearer 15 includes a pair of abutting members 40 forming the bearer 15 and releasably securable to the decks 5, 10 and each other by fastening means 45. The abutting members 40 typically include a top

web 20a and a bottom web 25a connected to a central web 30a by inclined portions 35a and each said central web 30a is adapted to be secured together.

Typically, the abutting members 40 of the bearers 15 are positioned abutting each other and fastening means 45 in the form of a threaded fastener or spot welds secure the two abutting members 40 together. The pallet 1 can include recesses (not shown) for locating and hiding the fastening means 45 below the plane of the adjacent surfaces. This will ensure no sharp objects, such as, the end of a bolt protrude above the adjacent surface of the deck, for example. The elongate bearer 15 can also include a stiffener strip 55 to provide further support to the elongate bearer 15 when the pallet 1 is required for extremely heavy loads. The pallet 1 can advantageously include many additional components to provide a more profiled pallet 1. For example, the top or bottom decks 5, 10 can include profiled configurations such as corrugations as best seen in Figure 2. Cover plates 60 and end caps 55 or the like as seen in Figures 4 and 5 could also be used.

Referring specifically to Figure 1, an elongate bearer 15 is shown having abutting members 40 in position for securing together by fastening means 45. The abutting members 40 each include a top web 20a and a bottom web 25a connected by a central web 30a by inclined portions 35a. The top webs 20a are load support flanges providing a minimal opening 47 therebetween allowing access for spot welding or attaching threaded fasteners such as screws or bolts or the like. In a preferred form the webs are abutting. A rounded non-sharp edge 39 is provided between the top web 20a and inclined portion 35a. The central web 30a can include a stiffener strip 55 for extra heavy duty loads, if required. The stiffener strip 55 is merely attached along the central web 30a at the holes 41 for the fastening means 45. The overall dimensions of all components can change depending upon the pallet required.

In Figure 2 is shown a standard 1000 x 1200 cm pallet 1. The pallet 1 dimensions however can vary to suit particular industry requirements such as, 1165 x 1165 cm, for example. The decks 5, 10 can also be in varying configurations, such as corrugations, flat panels, curves or the like. The corrugations for example, can be in any direction, non-uniform, and/or a combination of directions or shapes depending on the load to be lifted and moved. In the embodiment shown are galvanised steel corrugations which provide superior strength and durability. The corrugations also provide maximum

surface contact while retaining structural adequacy. However, a 100% flat surface can be provided in place of the corrugations or affixed to the top of the corrugations. The significant advantages of the pallet 1 is that all components are attached by fastening means 45, and that all components can be disassembled and reassembled or damaged components easily replaced, if required. Shaped steel sleeves 60 (as best seen in Figure 5) could also be added to cover sharp edges and increase strength. End caps 55 could also be added to provide a more aesthetically looking pallet 1. If corrugations are used an edge strip 73 could also be provided to seal in any openings for hygiene requirements. It should be noted in Figure 2 that there are also two sets of openings 75 and 80 for the tines or wheels of forklifts and pallet trucks.

A further embodiment is shown in Figure 3 where the elongate bearer 15 has a pair of abutting members 40 attached horizontally rather than vertically as in Figure 1. The openings 47 in the top webs 20a or bottom webs 25a provide access for spot welding the two abutting members 40 together if required or to assist in locating and tightening a threaded fastener 45.

Referring to Figure 4 some of the additional components of the pallet 1 discussed above are shown in more detail. For example, end cap 55 and edge strip 75. The pallet 1 could also include a cross member (not shown) between the bearers 15 or inside the corrugations to provide additional support for very heavy loads.

Figure 5 also shows additional componentry including a lip 77 formed in the corrugations to ensure no sharp edges and to stiffen against impact from a forklift. Alternatively, a separate U-shaped cover 60 could be provided. The lip 77 also provides an increase in the horizontal strength of the pallet 1. This embodiment also shows a further sheet material 79 across the top of the corrugations and a stiffener strip 55. This extra sheet material 79 could be galvanised steel, timber, plastic or any other material, if required.

The advantages of the steel pallet 1 is that it is completely disassembled as all components can be replaced individually quickly and inexpensively. Pallet 1 has extremely strong load bearing capacity (considering the gauges of steel that can be used); has structural adequacy and load distribution for rotational movements; the shape can be altered in all dimensions and angles for various purposes; smooth non sharp surfaces on

each bearer horizontal side and surfaces; small cross sectional area of end maximises width of openings for fork lift tine; allows for bolted, riveted, screwed or welded fixings along horizontal joint; allows for bolted, riveted, screwed or welded fixings for planks to bearers; horizontal joint can be recessed allowing for non protruding fixings/connections; 5 allows to hide sharp end for screw connection along upper and lower surface; connection fixings allow for easy disassembly to repair or replace components; external side has no joints visible, resists dirt collection; interior space is minimised to reduce contamination area; interior space small to enhance any cleaning pressure hose effect; shape can be varied in length, height and width to suit various purposes; the bearers could be 10 galvanised steel or aluminium; the deck could be steel, timber, plastic, paperboard, composites or fibres, for example; shape can be made of varying gauge metal to suit load purposes; end can be capped by shaped metal plate for heavy duty environments; top and bottom of shaped curved inward to reduce sharp edges; top and bottom shape curved inward to minimise un-planked exposed area; bearer shape at mid point can double steel 15 thickness enhancing load distribution; bearer shape allows for mid height horizontal stiffener attachment for extra heavy loads; bearer shape can be segmented to allow for 4 way pallet option; deck plank profile and dimensions are alterable for varying pallet sizes and loads; deck plank profile allows for recessed non surface contact fixings; deck can be adapted to 100% coverage if pallet purpose requires; one or more additional decks could 20 be added; allows hygienic adaptability for food industry requirements; deck board profile can have edge returns roll formed to avoid sharp edges; deck board edge return to stiffen end against fork lift and pallet truck impact; bearer shape allows for timber deck boards if necessary; deck board shape can have steel strip attached to cover cavities; deck board edge return to stiffen end against fork lift and pallet truck impact; bearer shape allows for 25 timber deck boards if required; deck board shape can have steel strip attached to cover cavities; deck board profile can have 45-60 degree folded ends to eliminate sharp edges; deck board folded ends covers horizontal cavities for food industry needs; and alternatively deck boards can have horizontal angle cover attachment.

Although the invention has been described with reference to specific examples, it will be appreciated by those skilled in the art that the invention may be embodied in many other forms and other structures.

DATED this Fifteenth Day of October, 2003

Alexander William Marshall Bailey

Patent Attorneys for the Applicant

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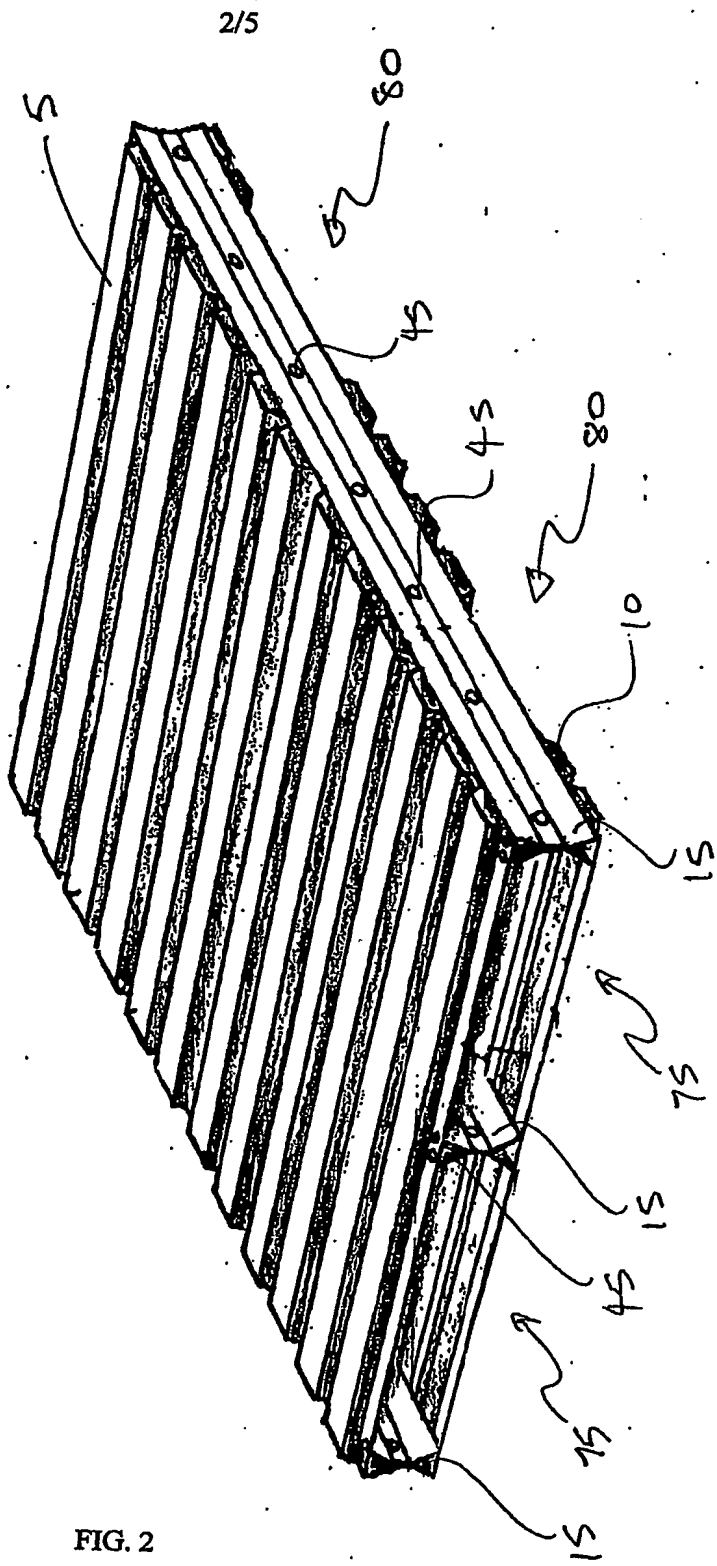


FIG. 2

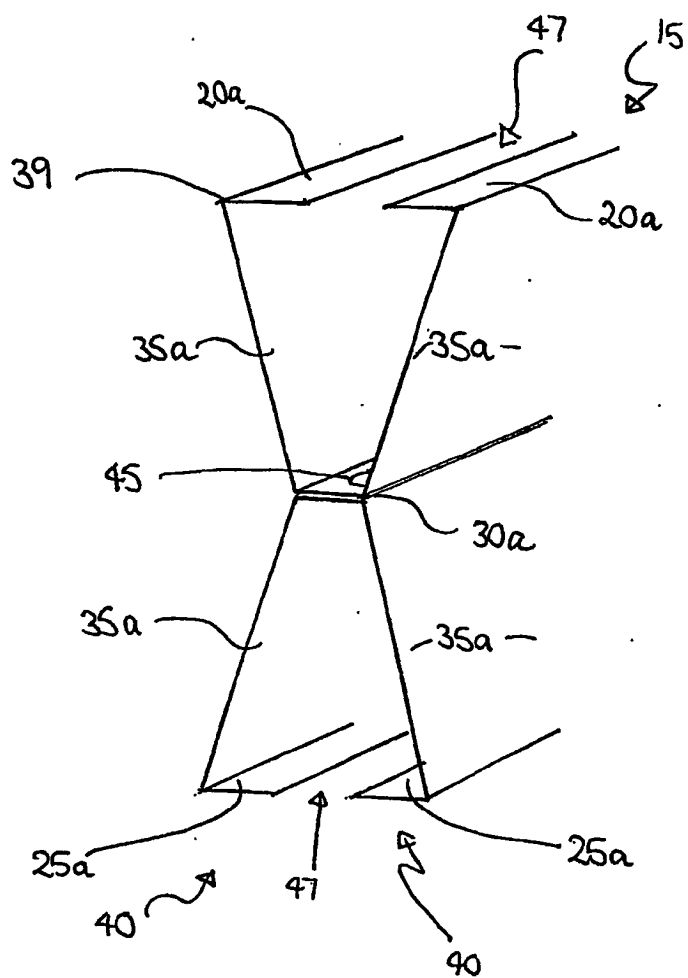


FIG. 3

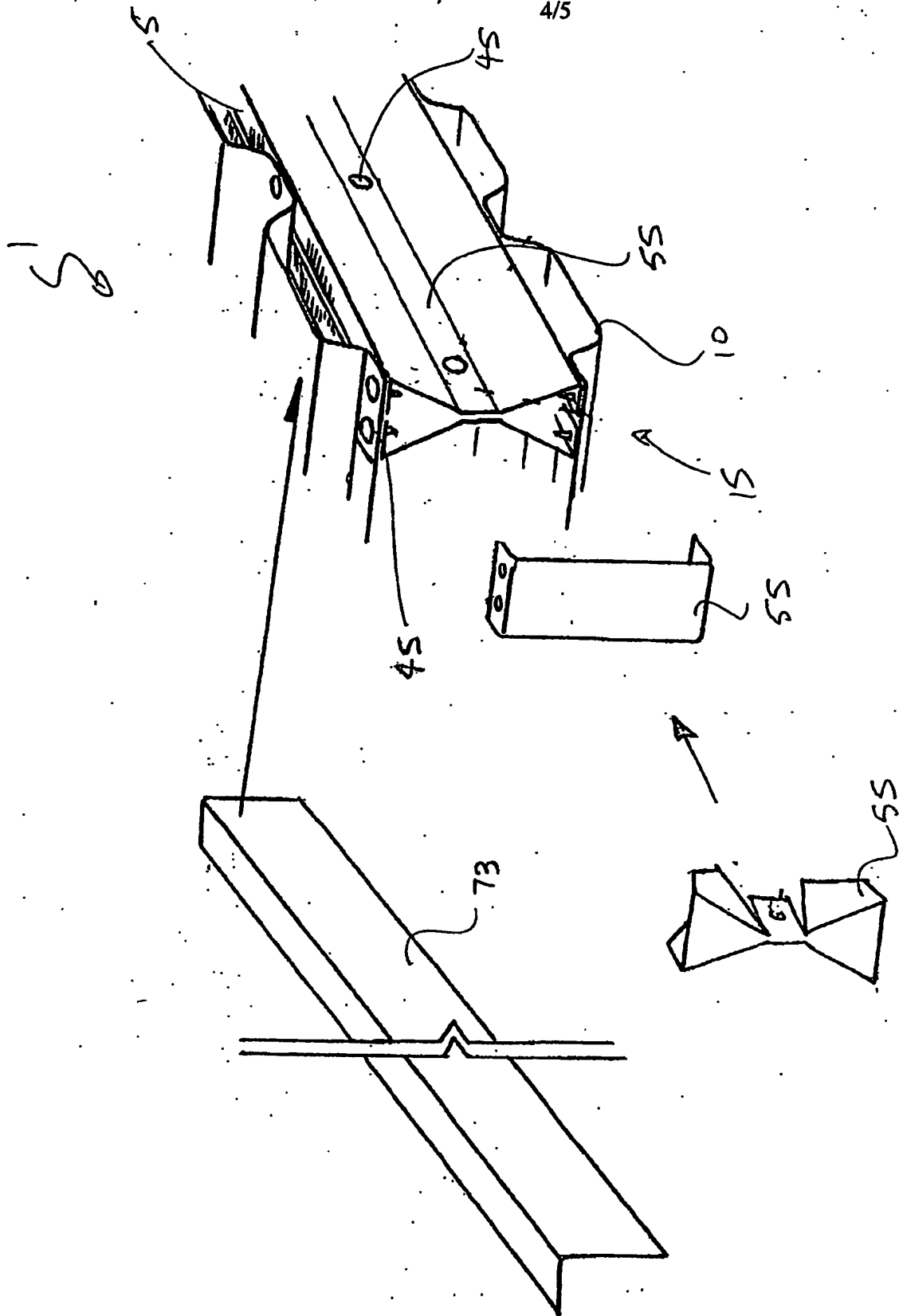


FIG. 4

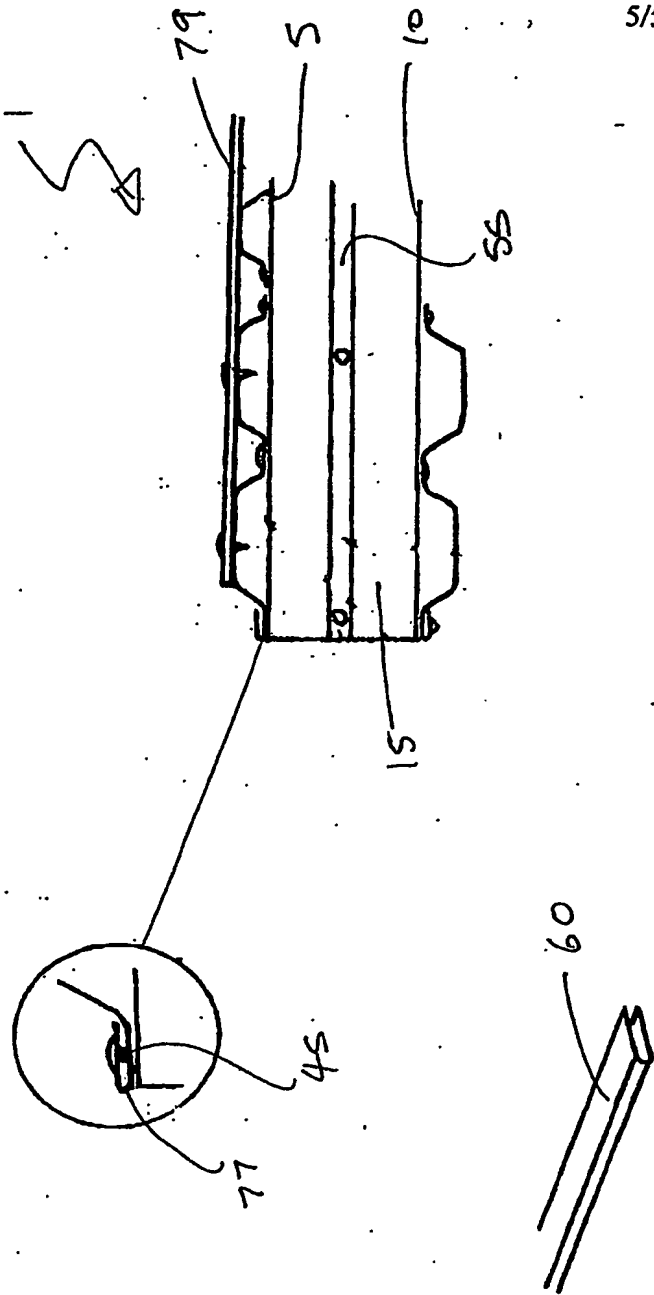


FIG. 5

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